



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,068	03/08/2001	Marius Vaarkamp	VER-137XX	8851

207 7590 02/04/2003

WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP
TEN POST OFFICE SQUARE
BOSTON, MA 02109

EXAMINER

STRICKLAND, JONAS N

ART UNIT	PAPER NUMBER
----------	--------------

1754

DATE MAILED: 02/04/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

Office Action Summary	Application No.		Applicant(s)	
	09/720,068		VAARKAMP, MARIUS	
	Examiner		Art Unit	
	Jonas N Strickland		1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. The Declaration has been objected to for having an incorrect application number (09/172,068).

Claim Objections

2. Claim 6 is objected to because of the following informalities: Applicant recites "oxidizing". It is suggested that Applicant recite -- oxidizing --. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 2, 11, 15, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 2, recites "the precious metal is at least one of Pt, Pd, Au....". This is improper Markush language. It is suggested that Applicant recite -- wherein the precious metal is selected from the group consisting of Pt, Pd, Au...---.
6. Claim 11 and claim 17 recite, "wherein the acid is selected from the group of HCl". This is improper Markush language. It is suggested that Applicant recite -- wherein the acid is selected from the group consisting of HCl,---.

Art Unit: 1754

7. Claim 15 and claim 17 recite "a process in the group consisting of". This is improper Markush language. It is suggested that Applicant recite -- a process selected from the group consisting of --.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-5, 8-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernholz et al. (US Patent 4,092,267).

Applicant claims a process for the regeneration of a catalyst, said catalyst comprising at least one precious metal on an amorphous silica-alumina support, in which process the catalyst is impregnated with an acid in liquid state, followed by reduction or oxidation of the impregnated catalyst at a temperature above 200°C.

Fernholz et al. discloses a process for regenerating palladium catalysts, having aluminosilicate supports (see abstract and col. 1, lines 31-32). The palladium catalysts

Art Unit: 1754

are impregnated with diluted HCl and are reduced with hydrogen gas at 200°C (col. 2, lines 53-55 and col. 3, lines 27-31). With respect to claim 5, Fernholz et al. discloses wherein the impregnated catalyst is treated with air and dried (col. 2, lines 60-65). The catalyst contains 0.5 to 5-wt% of palladium, with respect to claim 9 (col. 1, lines 60-62). With respect to claim 14, Fernholz et al. discloses wherein regeneration can be carried out outside of the catalytic reactor (col. 3, lines 64-68).

Therefore, it would have been obvious to one of ordinary skill in the art, based on the teachings of Fernholz et al. to impregnate a silica-alumina support having a palladium metal dispersed thereon with an acid and then to reduce the catalyst at a temperature above 200°C, because Fernholz et al. discloses a process for regenerating palladium catalysts, having aluminosilicate supports, wherein the palladium catalysts are impregnated with diluted HCl and are reduced with hydrogen gas at 200°C.

Therefore, it would have been obvious to one ordinary skill to reduce at a temperature above 200°C, because the temperature disclosed by Fernholz et al. is close enough that one skilled in the art would have expected it to have the same properties.

With respect to claim 3, it would have been obvious to one of ordinary skill in the art to expect the degree of dispersion to increase after the regeneration process based on the regeneration process disclosed by Fernholz et al., because Fernholz et al. clearly discloses impregnating a palladium catalyst supported on silica-alumina, with an acid and reducing the catalyst at 200°C with a hydrogen gas.

With respect to claims 8 and 12, it would have been obvious to one of ordinary skill in the art to modify the aluminum and silica atomic ratio, as well as the amount of

Art Unit: 1754

acid calculated on the basis of a ratio of equivalents of acid to atoms of precious metal between 0.1 and 100, as a result effective variable, in order to achieve superior results for regenerating palladium catalysts having aluminosilicate supports impregnated with HCl.

11. Claims 6, 13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernholz et al. (US Patent 4,092,267) as applied to claims 1-5, 8-12, and 14 above, and further in view of Berrebi (US Patent 5,068,477) and Kojima et al. (US Patent 5,391,527).

Applicant claims with respect to claims 6, 15, and 16, wherein the reduction and or oxidizing step are carried out at a temperature of between 250 and 600°C and wherein the used catalyst is utilized in a process for hydrogenation.

Fernholz et al. discloses a catalyst comprised of an alumina-silica support having a noble metal, which is reduced with hydrogen gas at 200°C. The catalyst is utilized for the oxacylation of olefins.

However, Berrebi teaches a process for the regenerating of catalysts in hydrogenation processes of olefins, wherein the most generally used catalysts are comprised of palladium deposited on an alumina or silica supports (col. 5, lines 57-59). Therefore, it would have been obvious to one of ordinary skill in the art to use the catalyst disclosed by Fernholz et al. in a hydrogenation process.

Furthermore, Kojima et al. teaches the regeneration of catalysts used in hydrogenation processes, wherein the catalyst is comprised of silica and alumina supports (col. 4, lines 14-17) and noble metals, such as palladium (col. 4, lines 41-54).

Art Unit: 1754

Kojima et al. continues to disclose wherein the catalyst is reduced with hydrogen gas at 300°C (col. 3, lines 55-58, col. 6, lines 45-47).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Fernholz et al., based on the teachings of Berrebi and Kojima et al., by regenerating a hydrogenation catalyst comprised of palladium deposited on an alumina or silica supports by reducing the catalyst with hydrogen gas at a temperature of between 250 and 600°C, because Berrebi teaches a process for the regenerating of catalysts in hydrogenation processes of olefins, wherein the most generally used catalysts are comprised of palladium deposited on an alumina or silica supports and Kojima et al. teaches the regeneration of catalysts used in hydrogenation processes, wherein the catalyst is comprised of silica and alumina supports and noble metals, such as palladium, wherein the catalyst is reduced with hydrogen gas at 300°C. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art, would have expected a process for regenerating a catalyst comprised of palladium deposited on an alumina or silica supports as taught by Berrebi and Kojima et al., to be similarly useful and applicable to the teachings of Fernholz et al., which also teaches a process for regenerating a catalyst comprised of palladium deposited on an alumina or silica supports.

With respect to claim 13, it is known to one of ordinary skill in the art to burn carbonaceous deposits on a catalyst, before regeneration treatment.

12. Claims 7, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernholz et al. (US Patent 4,092,267) in view of Berrebi (US Patent 5,068,477) and

Kojima et al. (US Patent 5,391,527) as applied to claims 1-6 and 8-16 above, and further in view of Neuenfeldt et al. (US Patent 5,695,634).

Applicant claims, with respect to claims 7 and 17 wherein the silica-alumina support is prepared using a sol-gel method.

The teachings of Fernholz et al., Berrebi et al., and Kojima et al. have been discussed with respect to claims 1-6 and 8-16. While Fernholz et al., Berrebi et al., and Kojima et al. teach having silica-alumina supports, they are silent with respect to the silica-alumina support being prepared by using a sol-gel method.

However, Neuenfeldt et al. teaches a process for regenerating a catalyst having a noble metal and a silica-alumina support, which is prepared by the sol-gel method (col. 2, lines 1-31). Furthermore, Neuenfeldt et al. teaches wherein the catalyst may be regenerated with HCl acid (col. 4, lines 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art, to modify the teachings of Fernholz et al., Berrebi et al., and Kojima et al., based on the teachings of Neuenfeldt et al., by preparing a silica-alumina support by the sol-gel method, because Neuenfeldt et al. teaches a process for regenerating a catalyst having a noble metal and a silica-alumina support, which is prepared by the sol-gel method. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art, would have expected a process for regenerating a catalyst having a noble metal and a silica-alumina support, which is prepared by the sol-gel method, wherein the catalyst may be regenerated with HCl acid as taught by Neuenfeldt et al, to be similarly useful and applicable to a process for regenerating a catalyst

Art Unit: 1754

comprised of a noble metal and a silica-alumina support with HCl as taught by Fernholz et al.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Miller et al. (US Patent 4,485,183)


14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonas N Strickland whose telephone number is 703-306-5692. The examiner can normally be reached on M-TH. 7:30-5:00, off 1st Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0661.



Jonas N. Strickland
January 24, 2003



WAYNE A. LANGEL
PRIMARY EXAMINER